

What is claimed is:

1. A method of increasing the conductivity of a fracture in a subterranean formation comprising the steps of:

providing a fracturing treatment fluid comprising a proppant composition, the proppant composition comprising proppant particulates and a degradable material capable of undergoing an irreversible degradation downhole;

introducing the proppant composition to the fracture; and

allowing the proppant composition to form a proppant matrix having voids in the fracture.

2. The method of claim 1 wherein the proppant particulates comprise sand, walnut hulls, or a man-made proppants.

3. The method of claim 1 wherein the proppant particulates have a size of 10 to 60 US mesh.

4. The method of claim 1 wherein the proppant composition further comprises a curable resin, a tackifying agent, or both.

5. The method of claim 4 wherein the curable resin comprises an epoxy, furan, phenolic, furfuryl aldehyde, or furfuryl alcohol resin.

6. The method of claim 1 wherein the proppant composition comprises interlocking proppant.

7. The method of claim 1 wherein the degradable material comprises a degradable polymer or a dehydrated salt.

8. The method of claim 7 wherein the degradable polymer comprises polysaccharides, chitins, chitosans, proteins, aliphatic polyesters, poly(lactides), poly(glycolides), poly( $\epsilon$ -caprolactones), poly(hydroxybutyrate), polyanhydrides, aliphatic polycarbonates, poly(orthoesters), poly(amino acids); poly(ethylene oxides), or polyphosphazenes.

9. The method of claim 1 wherein the degradable material further comprises a plasticizer.

10. The method of claim 7 wherein the dehydrated salt comprises anhydrous sodium tetraborate or anhydrous boric acid.

11. The method of claim 1 wherein the degradable material comprises poly(lactic acid) and a compound chosen from the group consisting of sodium borate and boric oxide.
12. The method of claim 1 wherein the degradable material comprises a stereoisomer of a poly(lactide).
13. The method of claim 1 wherein the proppant composition comprises a bauxite proppant, the bauxite proppant having been coated with a curable epoxy resin, and a polylactic acid degradable material.
14. The method of claim 1 wherein the degradable material is present in the proppant composition in an amount sufficient to create a desirable number of voids in the proppant matrix.
15. The method of claim 1 wherein the degradable material is present in the proppant composition in an amount of about 0.1% to about 30% by weight of proppant particulates in the composition.
16. The method of claim 1 wherein the degradable material comprises particles having a rod-like shape.
17. The method of claim 1 wherein the degradable material comprises an inorganic or organic compound.
18. The method of claim 17 wherein the inorganic or organic compound comprises sodium acetate trihydrate, L-tartaric acid disodium salt dihydrate, sodium citrate dihydrate, hydrate of an inorganic acid, hydrate of an inorganic acid salt, sodium tetraborate decahydrate, sodium hydrogenphosphate heptahydrate, sodium phosphate, dodecahydrate, amylose, starch-based hydrophilic polymer, or a cellulose-based hydrophilic polymer.
19. The method of claim 1 wherein the degradable material is a composite.
20. A method of enhancing the permeability of a proppant matrix comprising the step of introducing voids into the proppant matrix by a degradation of a degradable material within the matrix.
21. The method of claim 20 wherein the proppant matrix comprises sand, walnut hulls, or a man-made proppant particulates.

22. The method of claim 20 wherein the proppant matrix comprises a curable resin, a tackifying agent, or both.

23. The method of claim 22 wherein the curable resin comprises an epoxy, furan, phenolic, furfuryl aldehyde, or furfuryl alcohol resin.

24. The method of claim 20 wherein the proppant matrix comprises interlocking proppant particulates.

25. The method of claim 20 wherein the degradable material comprises a degradable polymer or a dehydrated salt.

26. The method of claim 25 wherein the degradable polymer comprises polysaccharides, chitins, chitosans, proteins, aliphatic polyesters, poly(lactides), poly(glycolides), poly( $\epsilon$ -caprolactones), poly(hydroxybutyrates), polyanhydrides, aliphatic polycarbonates, poly(orthoesters), poly(amino acids); poly(ethylene oxides), or polyphosphazenes.

27. The method of claim 20 wherein the degradable material further comprises a plasticizer.

28. The method of claim 25 wherein the dehydrated salt comprises anhydrous sodium tetraborate or anhydrous boric acid.

29. The method of claim 20 wherein the degradable material comprises poly(lactic acid) and a compound chosen from the group consisting of sodium borate and boric oxide.

30. The method of claim 20 wherein the degradable material comprises a stereoisomer of a poly(lactide).

31. The method of claim 20 wherein the proppant matrix comprises a bauxite proppant particulates, the bauxite proppant particulates having been coated with a curable epoxy resin, and a polylactic acid degradable material.

32. The method of claim 20 wherein the degradable material is present in the proppant matrix in an amount sufficient to create a desirable number of voids in the proppant matrix.

33. The method of claim 20 wherein the degradable material is present in the proppant composition in an amount of about 0.1% to about 30% by weight of proppant particulates in the composition.

34. The method of claim 20 wherein the degradable material comprises particles having a rod-like shape.

35. The method of claim 20 wherein at least a portion of the voids in the proppant matrix are channel-like in shape.

36. A proppant composition comprising:  
proppant particulates, and  
a degradable material that undergoes an irreversible degradation downhole.

37. The composition of claim 36 wherein the proppant particulates comprise sand, walnut hulls, or a man-made proppant particulates.

38. The composition of claim 36 wherein the proppant particulates have a size of 10 to 60 US mesh.

39. The composition of claim 36 wherein the proppant composition further comprises a curable resin, a tackifying agent, or both.

40. The composition of claim 39 wherein the curable resin comprises an epoxy, furan, phenolic, furfuryl aldehyde, or furfuryl alcohol resin.

41. The composition of claim 36 wherein the proppant composition comprises interlocking proppant particulates.

42. The composition of claim 36 wherein the degradable material comprises a degradable polymer or a dehydrated salt.

43. The composition of claim 42 wherein the degradable polymer comprises polysaccharides, chitins, chitosans, proteins, aliphatic polyesters, poly(lactides), poly(glycolides), poly( $\epsilon$ -caprolactones), poly(hydroxybutyrate), polyanhydrides, aliphatic polycarbonates, poly(orthoesters), poly(amino acids); poly(ethylene oxides), or polyphosphazenes.

44. The composition of claim 36 wherein the degradable material further comprises a plasticizer.

45. The composition of claim 42 wherein the dehydrated salt comprises anhydrous sodium tetraborate or anhydrous boric acid.

46. The composition of claim 36 wherein the degradable material comprises poly(lactic acid) and a compound chosen from the group consisting of sodium borate and boric oxide.

47. The composition of claim 36 wherein the degradable material comprises a stereoisomer of a poly(lactide).

48. The composition of claim 36 wherein the proppant composition comprises a bauxite proppant particulates, the bauxite proppant particulates having been coated with a curable epoxy resin, and a polylactic acid degradable material.

49. The composition of claim 36 wherein the degradable material is present in the proppant composition in an amount of about 0.1% to about 30% by weight of the particulates in the composition.

50. The composition of claim 36 wherein the degradable material comprises particles having a rod-like shape.

51. The composition of claim 36 wherein the degradable material comprises an inorganic or organic compound.

52. The composition of claim 37 wherein the inorganic or organic compound comprises sodium acetate trihydrate, L-tartaric acid disodium salt dihydrate, sodium citrate dihydrate, hydrate of an inorganic acid, hydrate of an inorganic acid salt, sodium tetraborate decahydrate, sodium hydrogenphosphate heptahydrate, sodium phosphate, dodecahydrate, amylose, starch-based hydrophilic polymer, or a cellulose-based hydrophilic polymer.

53. The composition of claim 36 wherein the degradable material is a composite.

54. A composition for enhancing the permeability of a proppant matrix comprising proppant particulates and a degradable material.

55. The composition of claim 54 wherein the proppant particulates comprise sand, walnut hulls, or a man-made proppant particulates.

56. The composition of claim 54 wherein the proppant particulates have a size of 10 to 60 US mesh.

57. The composition of claim 54 wherein the proppant composition further comprises a curable resin, a tackifying agent, or both.

58. The composition of claim 57 wherein the curable resin comprises an epoxy, furan, phenolic, furfuryl aldehyde, or furfuryl alcohol resin.

59. The composition of claim 54 wherein the proppant composition comprises interlocking proppant particulates.

60. The composition of claim 54 wherein the degradable material comprises a degradable polymer or a dehydrated salt.

61. The composition of claim 60 wherein the degradable polymer comprises polysaccharides, chitins, chitosans, proteins, aliphatic polyesters, poly(lactides), poly(glycolides), poly( $\epsilon$ -caprolactones), poly(hydroxybutyrates), polyanhydrides, aliphatic polycarbonates, poly(orthoesters), poly(amino acids); poly(ethylene oxides), or polyphosphazenes.

62. The composition of claim 54 wherein the degradable material further comprises a plasticizer.

63. The composition of claim 60 wherein the dehydrated salt comprises anhydrous sodium tetraborate or anhydrous boric acid.

64. The composition of claim 54 wherein the degradable material comprises poly(lactic acid) and a compound chosen from the group consisting of sodium borate and boric oxide.

65. The composition of claim 54 wherein the degradable material comprises a stereoisomer of a poly(lactide).

66. The composition of claim 54 wherein the proppant composition comprises a bauxite proppant particulates, the bauxite proppant particulates having been coated with a curable epoxy resin, and a polylactic acid degradable material.

67. The composition of claim 54 wherein the degradable material is present in the proppant composition in an amount of about 0.1% to about 30% by weight of proppant particulates in the proppant composition.

68. The composition of claim 54 wherein the degradable material comprises particles having a rod-like shape.